

REMARKS

In response to the pending Office Action, claim 5 has been amended, and claims 22-24 have been added. Care has been taken to avoid the introduction of new matter. Favorable reconsideration of the application in light of the following comments is respectfully solicited.

Claim Rejections - 35 U.S.C. §102

Claims 4, 12, 14, and 16 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent Number 4,553,159 (“Moraillon”). Claims 5, 15, 18, 19, and 21 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent Number 6,124,888 (“Terada”). Applicants respectfully traverse these rejections for at least the following reasons. The following remarks first address the rejection of claims 4, 12, 14, and 16, and then address the rejection of claims 5, 15, 18, 19, and 21.

Claim 4 recites a solid state imaging apparatus including, among other features, a signal output circuit that includes: a first shift register for sequentially outputting selection signals, which select each pixel, to all of the plurality of the pixels either in a vertical or a horizontal direction and a second shift register for continuously outputting the selection signals to some of the plurality of pixels having color filters of the same color either in a vertical or a horizontal direction partially.

To illustrate, in one aspect, the present application can make it possible for a signal output circuit to select one of two operations. Hence, according to the present application, it is possible to switch between a regular operation, in which selection signals selecting each pixel can be sequentially output to all pixels either in a vertical or horizontal direction, and a mixture

operation, in which selection signals selecting each pixel can be continuously output to some pixels having color filters of the same color either in a vertical or horizontal direction partially.

Applicants respectfully request reconsideration and withdrawal of the rejection of claim 4 because Watanabe fails to describe or suggest a solid state imaging apparatus including, among other features, a signal output circuit configured to perform one of two types of operations, wherein the signal output circuit includes: a first shift register for sequentially outputting selection signals, which select each pixel, to *all* of the plurality of the pixels either in a vertical or a horizontal direction and a second shift register for continuously outputting the selection signals to some of the plurality of pixels having color filters of the same color either in a vertical or a horizontal direction partially, as recited in claim 4.

Moraillon, in FIG. 3, discloses an analyzer including a photosensitive matrix (10), an upper register (12), and a lower register (13). Moraillon at col. 2, lines 42-51. The upper register (12) is adapted to receive signals of the elements of the uneven rank of the various lines in matrix (10), whereas the lower register (13) is adapted to receive signals of the elements of the even rank lines in matrix (10). Moraillon at col. 2, lines 54-57. Therefore, when the line (n) is selected, the upper register (12) only contains signals corresponding to the green color, whereas the lower register (13) only contains signals corresponding to the red color. Moraillon at col. 3, lines 1-3. Correspondingly, when line (n+1) is selected, the upper register (12) only contains signals corresponding to the green color, whereas the lower register (13) only contains signals corresponding to the blue color. Moraillon at col. 3, lines 4-6. Therefore, for any given line, each of the alleged first shift register (12) and second shift register (13) transmits only some of the pixels.

In other words, if Moraillon has M pixels on a single line in a horizontal direction, each of the alleged first shift register 12 and the alleged second shift register 13 outputs only some of the M pixels. That is, the alleged first shift register (12) outputs M/2 pixels and the alleged second shift register (13) outputs the other M/2 pixels. Therefore, all pixel signals in a horizontal direction are not output unless both of the alleged first shift register 12 and the alleged second shift register 13 are operated.

As such, neither the alleged first shift register (12) and the alleged second shift register (13) is configured to sequentially output selection signals, which select each pixel, to all of the plurality of the pixels either in a vertical or a horizontal direction. Accordingly, Moraillon fails to describe or suggest a solid state imaging apparatus including, among other features, a signal output circuit configured to perform one of two types of operations, wherein the signal output circuit includes: a first shift register for sequentially outputting selection signals, which select each pixel, to all of the plurality of the pixels either in a vertical or a horizontal direction and a second shift register for continuously outputting the selection signals to some of the plurality of pixels having color filters of the same color either in a vertical or a horizontal direction partially, as recited in claim 4.

For the foregoing reasons, Applicants respectfully request reconsideration and withdrawal of the rejection of claim 4. Claim 12 includes features similar to the above-recited features of claim 4. Therefore, for at least the reasons presented above with respect to claim 4, Applicants respectfully request reconsideration and withdrawal of the rejection of claim 12.

As amended, claim 5 recites a solid state imaging apparatus that includes, among other features, a signal output circuit including: an operation switching circuit for outputting the selection signals from the shift register, the operation switching circuit configured to switch

between a first signal transmission method in which the selection signals are sequentially output to all pixels either in the vertical direction or the horizontal direction and a second signal transmission method in which the selection signals are continuously output to *all* pixels having color filters of the same color either in the vertical direction or the horizontal direction partially.

To provide context, in one implementation, the application describes a solid state imaging apparatus that is capable of selecting either the first or second signal transmission method using a shift register and an operation switching circuit, to switch between a regular operation and a mixture operation. In the regular operation, selection signals selecting each pixel are sequentially output to all pixels arranged in a single row or a single column in the first signal transmission method. In the mixture operation, selection signals selecting each pixel are continuously output to all pixels having color filters of the same color arranged in a single row or a single column in the second signal transmission method partially.

Applicants respectfully request reconsideration and withdrawal of the rejection of claim 5 because Terada, in the relied upon portions, fails to describe or suggest a solid state imaging apparatus that includes, among other features, a signal output circuit including: an operation switching circuit for outputting the selection signals from the shift register, the operation switching circuit configured to switch between a first signal transmission method in which the selection signals are sequentially output to all pixels either in the vertical direction or the horizontal direction and a second signal transmission method in which the selection signals are continuously output to *all* pixels having color filters of the same color either in the vertical direction or the horizontal direction partially, as recited in claim 5.

Terada, in FIG. 25, discloses an image pickup apparatus including an image pickup device (602) and a mode selection means (607). Terada at col. 25, lines 15-40. The image

pickup device (602) comprises a plurality of pixels arranged in a matrix. *Id.* The mode selection means (607) enables the image pickup apparatus to switch between still image mode and a motion picture mode. *Id.* If the still image mode is selected by the mode selection means (607), the drive control circuit controls the operation of the image pickup device (602) so as to read out the predetermined number of pixels without thinning. Terada at col. 25, lines 46-25. However, if the motion picture mode is selected by the mode selection means (607), the drive control circuit controls the operation of the image pickup device (602) so as to read out the predetermined number of pixels by thinning. Terada at col. 25, lines 55-60.

The Office Action asserts that the still image mode corresponds to the first signal transmission method and the motion picture mode (video mode) corresponds to the second signal transmission method recited in claim 5. Assuming, *arguendo*, this assertion is correct, in the alleged video mode, due to thinning-out operation, some (not all) pixels having color filters of the same color are sequentially output, by the mode selection means (607).

For example, due to the thinning-out operation, the image pickup device (602) shown in FIG. 27A becomes equivalent to the one shown in FIG. 27B. As shown, in FIG. 27B, due to the thinning-out operation only some pixels having color filters are sequentially output. To illustrate, G signal of the primary unit (1,1) in FIG. 27B comprises G signals (1,1), (3,1), (1,3), and (3,3) in FIG. 27A but does not comprise G signals (2,2), (4,2), (2,4), and (4,4) in FIG. 27A.

As such, Terada thins out some pixel signals and does not use all pixel signals. In contrast, in claim 5, the second transmission method (alleged video mode) utilizes all pixel signals. As such, omission of pixel information can be avoided, so that occurrence of false color can be prevented.

Accordingly, in the relied upon portions, Terada fails to describe or suggest a solid state imaging apparatus that includes, among other features, a signal output circuit including: an operation switching circuit for outputting the selection signals from the shift register, the operation switching circuit configured to switch between a first signal transmission method in which the selection signals are sequentially output to all pixels either in the vertical direction or the horizontal direction and a second signal transmission method in which the selection signals are continuously output to *all* pixels having color filters of the same color either in the vertical direction or the horizontal direction partially, as recited in claim 5.

For at least the foregoing reasons, Applicants respectfully request reconsideration and withdrawal of the rejection of claim 5.

Dependent Claims

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Because claims 4, 5, and 12 are allowable for the reasons set forth above, it is respectfully submitted that all claims dependent thereon are also allowable. In addition, it is respectfully submitted that the dependent claims are allowable based on their own merits by adding novel and non-obvious features to the combination.

Based on the foregoing, it is respectfully submitted that all pending claims are allowable over the cited prior art. Accordingly, it is respectfully requested that the 102 be withdrawn.

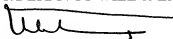
Conclusion

Having fully responded to all matters raised in the Office Action, Applicants submit that all claims are in condition for allowance, an indication for which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to call Applicants' attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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